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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,108	12/15/2003	Chun Pyo Hong	1751-347	4863

6449 7590 10/04/2005

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EXAMINER

LIN, ING HOUR

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/734,108	HONG, CHUN PYO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ing-Hour Lin	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al in view of Brinegar et al.

Shibata et al (col. 8, lines 27+) teach the claimed apparatus for manufacturing a semi-solid metallic slurry having solid phase ratio in the range 10-60% (col. 9, lines 65+) , comprising a sleeve 2 having two open ends, through one end the molten metal is loaded into the sleeve; a temperature control (fluid passage 2b); a stirring unit of electromagnetic field 6 and a shutter unit of a removable plunger 5 for closing or opening the other end. Shibata et al fail to teach the use of applying an electromagnetic field (EM field) in the sleeve before the completion of loading the molten metal to the vessel.

However, Brinegar et al (col. 3, lines 56+) teach the use of applying EM field before or during loading the molten metal to the sleeve (mold) for the purpose of controlling the fine-grained equiaxed slurry (non-dendritic casting). It would have been obvious to one having ordinary skill in the art to provide Shibata et al the use of applying EM field before loading the molten metal to the vessel (mold) as taught by Brinegar et al in order to control the fine-grained equiaxed slurry (non-dendritic casting) in the sleeve.

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3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al in view of Bringar et al and further in view of Doutre et al.

Shibata et al in view of Bringar et al fail to teach the use of stopper for the shutter unit.

However, Doutre et al (col. 7, lines 8+ and Figs. 5-6) teach the use of a shutter unit of a removable stopper (closure) 56 for closing or opening the other end of the sleeve for the purpose of keeping or removing the semi-solid metallic slurry in the sleeve . It would have been obvious to one having ordinary skill in the art to provide Shibata et al in view of Bringar et al the use of a stopper as taught by Doutre et al in order to effectively control the amount of semi-solid metallic slurry in the sleeve.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al in view of Bringar et al and further in view of Nakao et al.

Shibata et al in view of Bringar et al fail to teach the use of a pressing unit and a plunger.

However, Nakao et al (col. 8, lines 58+) teach the use of a plunger 30 as shutter and a pressing unit 49 as presser for the purpose of controlling the shape of billet 48 in the sleeve (cylinder) 25. It would have been obvious to one having ordinary skill in the art to provide Shibata et al in view of Bringar et al the use of a pressing unit and a plunger as taught by Nakao in order to control the slurry in the sleeve.

***Response to Arguments***

Applicant's arguments filed on 7/19/05 have been fully considered but they are not persuasive. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, applicant argued that Shibata et al fail to teach the use of applying an electromagnetic field (EM field) in the sleeve before the completion of loading the molten metal to the vessel.

However, Brinegar et al (col. 3, lines 56+) teach the use of applying EM field before or during loading the molten metal to the sleeve (mold) for the purpose of controlling the fine-grained equiaxed slurry (non-dendritic casting). It would have been obvious to one having ordinary skill in the art to provide Shibata et al the use of applying EM field before loading the molten metal to the vessel (mold) as taught by Brinegar et al in order to control the fine-grained equiaxed slurry (non-dendritic casting) in the sleeve.

**5. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*I. H. Lin*  
I.-H. Lin

9-30-05

KEVIN KERNS  
PRIMARY EXAMINER

*Kevin Kerns 10/3/05*